

Case study

June 2012



Rock Creek Unified School District 323

*Upgrades provide \$154,000/yr savings, improve learning environment
Westmoreland, KS*

Rock Creek Unified School District (USD) 323 is located fifteen miles from Manhattan, Kansas, and Kansas State University. The mostly-rural district covers 230 square miles and has two communities within its boundaries. The two elementary buildings, pre-kindergarten through sixth grade, are located in St. George and Westmoreland. The Jr/Sr High is located in St. George. The school district's over seventy full and part-time teachers are dedicated to educational excellence and to helping their 900 students become successful and responsible lifelong learners.

Challenge

The outdated HVAC systems at Rock Creek USD 323 were inefficient and required increased service to keep them operating. The aging equipment was also having a negative effect on the learning environment at the district's Westmoreland Elementary School. The school's 90-year-old system with steam radiators and window air-conditioning units was extremely loud, making it hard for students to hear their teachers. Rock Creek sought to reduce its energy consumption, combat rising maintenance costs, and improve the learning environment for its students and staff.

Solution

Based on a previous relationship, and recommendations from its maintenance company, Rock Creek USD 323 entered into an energy saving upgrade project with Trane. The project consisted of building improvements designed to reduce the district's annual energy usage, address deferred maintenance issues and improve classroom conditions.

The upgrades were achieved through participation in a statewide program offered by the Kansas Corporation Commission (enabled by K.S.A. 75-37,125) and a performance contract with Trane. The state program allows the school district to make payments from capital outlay funds and use the energy savings to pay for operating costs.



Rock Creek Unified School District is dedicated to educational excellence and lifelong learning.

HVAC systems improve reliability and comfort

A higher-efficiency HVAC system was installed at the district's St. George Elementary School, with a new ventilation system in the gym for improved comfort and air quality. The twenty-year-old chiller at the Jr/Sr High School was replaced with a high-efficiency 155-ton air-cooled rotary chiller, designed to be reliable, efficient and compact. The chiller also operates at low sound levels, so as not to disturb the classroom setting. The steam heat air handling at the Westmoreland Elementary School was replaced with a more efficient Trane heat pump. The quiet operation of the unit eliminates noise distraction and provides a better learning environment for the students.

Infrastructure upgrades reduce energy consumption

The existing single-pane windows in the elementary schools were upgraded with thermal break aluminum windows with insulated glass. Metal halide lights in the lower school gym were replaced with fluorescent fixtures for brighter illumination and energy savings. Low flow plumbing fixtures were installed to reduce water consumption.

Integrated BAS provides flexible, cost-effective facility management

Pleased with a Trane control system previously installed at one of its elementary schools, Rock Creek replaced pneumatic system and zone level controls at the Jr/Sr High School with Trane state-of-the-art digital controls and software. Stand-alone thermostats and controls at Westmoreland Elementary were also replaced with a Trane control system.

A Trane Tracer Summit® building automation system (BAS) with Tracer ES™ software was integrated with existing control systems. The BAS gives Rock Creek facility managers an online, enterprise-wide view and control over all of their buildings and systems from any computer with Internet access. The Tracer Summit BAS can be used to perform daily tasks, such as troubleshooting, alarm management and data analysis, and provides a flexible, cost-effective solution for managing facility climate, lighting and energy consumption.

Results

System and infrastructure upgrades at Rock Creek USD 323 have improved classroom conditions and are projected to substantially reduce energy and maintenance costs. Overall savings for the district, including electricity, water, gas and operational savings, are expected to be approximately \$154,000 annually.



A Trane high-efficiency, air-cooled rotary chiller helps to reduce Rock Creek Unified School District's energy costs.

"After our first summer with the new equipment, we compared electricity bills to previous years and saw a substantial savings," said Dr. Darrel Stufflebeam, Rock Creek USD 323 superintendent of schools. "We don't expect the same level of energy savings at Westmoreland Elementary School, but our primary goals for that building were to improve the learning environment, and use the savings from the other buildings to help pay for it."

"We are pleased with the project," added Stufflebeam. "Communication and customer service were excellent, and satisfying our desires was a top priority for Trane. When we were unhappy with how some light fixtures looked after they were installed, Trane simply had the subcontractor take them down and install different ones - no questions asked."



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